

IN THE CLAIMS

Please amend the claims to read as follows:

Listing of Claims

1-25. (Canceled).

26. (Currently Amended) ~~The method according to claim 22,~~  
wherein A method of transmitting data in a wireless communication  
system from a transmitter to a receiver, the method comprising:  
modulating data at the transmitter using a first modulation  
scheme to obtain a first data symbol, the first modulation scheme  
being a higher order modulation scheme and data bits mapped onto  
data symbols have different bit reliabilities depending on the  
chosen modulation scheme;  
transmitting the first data symbol to the receiver over a  
first diversity branch;  
modulating said data at the transmitter using a second  
modulation scheme to obtain a second data symbol;  
transmitting the second data symbol to the receiver over a  
second diversity branch;  
demodulating the received first and second data symbols at  
the receiver using first and second demodulation schemes

corresponding to the first and second modulation schemes,  
respectively; and

diversity combining the demodulated data, wherein:

the first and second modulation schemes for the first and  
second diversity branches are selected such that after diversity  
combining the data bits of the demodulated data, the differences  
among the combined bit reliabilities are reduced, and

the data for transmission is modulated using a single  
redundancy version scheme with an identical data bit sequence.

27. (Currently Amended) ~~The method according to claim 22,~~  
~~wherein~~ A method of transmitting data in a wireless  
communication system from a transmitter to a receiver, the method  
comprising:

modulating data at the transmitter using a first modulation  
scheme to obtain a first data symbol, the first modulation scheme  
being a higher order modulation scheme and data bits mapped onto  
data symbols have different bit reliabilities depending on the  
chosen modulation scheme;

transmitting the first data symbol to the receiver over a  
first diversity branch;

modulating said data at the transmitter using a second  
modulation scheme to obtain a second data symbol;

transmitting the second data symbol to the receiver over a second diversity branch;

demodulating the received first and second data symbols at the receiver using first and second demodulation schemes corresponding to the first and second modulation schemes, respectively; and

diversity combining the demodulated data, wherein:

the first and second modulation schemes for the first and second diversity branches are selected such that after diversity combining the data bits of the demodulated data, the differences among the combined bit reliabilities are reduced, and

the data for transmission is modulated using a multiple redundancy version scheme of partly identical bits.

28. (Canceled).

29. (Canceled).

30. (Currently Amended) ~~The method according to claim 28 or~~  
29 A method of transmitting data in a wireless communication system from a transmitter to a receiver, the method comprising:  
modulating data at the transmitter using a first modulation scheme to obtain a first data symbol, the first modulation scheme

being a higher order modulation scheme and data bits mapped onto data symbols have different bit reliabilities depending on the chosen modulation scheme;

transmitting the first data symbol to the receiver over a first diversity branch;

modulating said data at the transmitter using a second modulation scheme to obtain a second data symbol;

transmitting the second data symbol to the receiver over a second diversity branch;

demodulating the received first and second data symbols at the receiver using first and second demodulation schemes corresponding to the first and second modulation schemes, respectively; and

diversity combining the demodulated data, wherein:

the first and second modulation schemes for the first and second diversity branches are selected such that after diversity combining the data bits of the demodulated data, the differences among the combined bit reliabilities are reduced,

first and second signal constellation patterns defining the first and second modulation schemes are pre-stored in a memory table, and wherein

the properties of the first and second signal constellation patterns are obtained by:

(a) interleaving the positions of the bits mapped onto the signal constellation patterns, or

(b) inverting the bit values of the bits mapped onto the signal constellation patterns.

31. (Currently Amended) The method according to claim 30 or 41, wherein the interleaving is performed with symbols resulting in an intra-symbol interleaving.

32. (Currently Amended) ~~The method according to claim 22~~ wherein A method of transmitting data in a wireless communication system from a transmitter to a receiver, the method comprising:

modulating data at the transmitter using a first modulation scheme to obtain a first data symbol, the first modulation scheme being a higher order modulation scheme and data bits mapped onto data symbols have different bit reliabilities depending on the chosen modulation scheme;

transmitting the first data symbol to the receiver over a first diversity branch;

modulating said data at the transmitter using a second modulation scheme to obtain a second data symbol;

transmitting the second data symbol to the receiver over a second diversity branch;

demodulating the received first and second data symbols at the receiver using first and second demodulation schemes corresponding to the first and second modulation schemes, respectively; and

diversity combining the demodulated data, wherein:

the first and second modulation schemes for the first and second diversity branches are selected such that after diversity combining the data bits of the demodulated data, the differences among the combined bit reliabilities are reduced, and

the data is transmitted with a plurality of redundancy versions, and the transmitted bits comprise systematic and parity bits and the systematic bits are included in each redundancy version.

33. (Previously Presented) The method according to claim 32, wherein the combined mean bit reliabilities for the systematic bits are higher than that of the parity bits.

34-35. (Canceled) .

36. (Currently Amended) ~~The transmitter according to claim~~  
~~35, further comprising~~ A transmitter for transmitting data in a  
wireless communication system to a receiver, the transmitter  
comprising:

a table component that pre-stores first and second signal  
constellation patterns defining first and second modulation  
schemes;

a mapping unit that modulates data using the first  
modulation scheme to obtain a first data symbol, the first  
modulation scheme being a higher order modulation scheme and data  
bits mapped onto data symbols have different bit reliabilities  
depending on the chosen modulation scheme;

a transmitting unit that transmits the first data symbol to  
the receiver using a first diversity branch;

said mapping unit modulates said data using the second  
modulation scheme to obtain a second data symbol; and

said transmitting unit transmits the second data symbol to  
the receiver using a second diversity branch, wherein:

the first and second modulation schemes for the first and  
second diversity branches are selected such that after diversity  
combining demodulated data bits of the first and second data  
symbols received by the receiver, the differences among the  
diversity combined bit reliabilities are reduced

said transmitter further comprising one of an interleaver or and an inverter to obtain different signal constellation patterns.

37-40. (Canceled).

41. (New) A method of transmitting data in a wireless communication system from a transmitter to a receiver, the method comprising:

modulating data at the transmitter using a first modulation scheme to obtain a first data symbol, the first modulation scheme being a higher order modulation scheme and data bits mapped onto data symbols have different bit reliabilities depending on the chosen modulation scheme;

transmitting the first data symbol to the receiver over a first diversity branch;

modulating said data at the transmitter using a second modulation scheme to obtain a second data symbol;

transmitting the second data symbol to the receiver over a second diversity branch;

demodulating the received first and second data symbols at the receiver using first and second demodulation schemes



corresponding to the first and second modulation schemes,  
respectively; and

diversity combining the demodulated data, wherein:

the first and second modulation schemes for the first and  
second diversity branches are selected such that after diversity  
combining the data bits of the demodulated data, the differences  
among the combined bit reliabilities are reduced,

the first and second signal constellation patterns are  
signaled to the receiver,

the properties of the first and second signal constellation  
patterns are obtained by:

(a) interleaving the positions of the bits mapped onto the  
signal constellation patterns, or

(b) inverting the bit values of the bits mapped onto the  
signal constellation patterns.